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ONLINE SUPPLEMENT

Table S1: Regression result of k (m/s)=aX^b for each soil type

Publication	Sources	w_L	n	$X=e$				$X=e^3/(1+e)$				ΔR^2	ΔRD
				a*	b*	R^2	RD	a*	b*	R^2	RD		
Sridharan et al. (1986a)	Al-Bentonite	108	5	2.02×10^{-11}	2.6	1	15.1	4.21×10^{-11}	1.06	1	14.5	-0.002	0.59
Benson and Trast (1995)	Alluvial-1	29	15	4.63×10^{-7}	8.36	0.48	71.87	3.02×10^{-6}	3.09	0.48	72.25	0.005	-0.37
Benson and Trast (1995)	Alluvial-2	24	15	5.21×10^{-8}	5.80	0.41	76.76	1.97×10^{-7}	2.15	0.41	76.70	-0.001	0.06
Tavenas et al. (1983b)	B6 clay	34	6	5.38×10^{-10}	2.48	0.92	27.44	1.08×10^{-9}	1.00	0.92	27.74	0.002	-0.30
Sridharan et al. (1986a)	Ba-Bentonite	108	4	3.18×10^{-12}	4.5	1	6.93	1.13×10^{-11}	1.88	1	6.42	-0.001	0.51
Leroueil et al. (1990)	Backebol clay	88	5	4.89×10^{-11}	4.03	0.99	7.98	1.51×10^{-10}	1.70	0.99	8.40	0.001	-0.43
Horpibulsuk et al. (2011)	Bangkok clay-1	71	7	6.12×10^{-11}	4.37	1.00	6.11	2.12×10^{-10}	1.77	0.99	7.27	0.002	-1.17
Horpibulsuk et al. (2011)	Bangkok clay-2	100	7	1.62×10^{-11}	3.92	0.99	7.58	4.93×10^{-11}	1.65	0.99	8.65	0.002	-1.07
Horpibulsuk et al. (2011)	Bangkok clay-3	77	7	4.49×10^{-11}	4.15	0.99	7.60	1.48×10^{-10}	1.70	0.99	8.56	0.002	-0.96
Horpibulsuk et al. (2011)	Bangkok clay-4	105	7	1.83×10^{-11}	3.34	0.98	14.95	4.72×10^{-11}	1.40	0.97	16.02	0.003	-1.08
Raymond (1966)	Bentonite-1	118	28	1.89×10^{-13}	12.58	0.92	28.64	6.36×10^{-12}	5.31	0.92	28.37	-0.002	0.27
Sivapullaiah et al. (2000)	Bentonite-2	344	26	3.86×10^{-13}	3.33	0.97	17.73	9.40×10^{-13}	1.46	0.97	17.55	-0.001	0.18
Towhata et al. (1993)	Bentonite-3	450	9	5.73×10^{-14}	3.16	0.98	13.95	1.36×10^{-13}	1.40	0.97	16.08	0.006	-2.12
Horpibulsuk et al. (2011)	Bentonite-4	131	6	1.46×10^{-12}	4.81	1.00	4.44	5.77×10^{-12}	2.05	1.00	4.79	0.000	-0.34
Horpibulsuk et al. (2011)	Bentonite-5	127	6	2.29×10^{-12}	4.48	0.99	8.22	8.33×10^{-12}	1.89	0.99	9.63	0.003	-1.42
Horpibulsuk et al. (2011)	Bentonite-6	129	6	3.31×10^{-12}	3.86	0.98	12.81	1.03×10^{-11}	1.61	0.98	14.28	0.004	-1.46
Horpibulsuk et al. (2011)	Bentonite-7	102	6	2.25×10^{-12}	5.36	0.98	15.62	1.05×10^{-11}	2.24	0.97	16.90	0.004	-1.28

Nagaraj et al. (1993)	Bentonite-8	300	6	3.54×10^{-15}	6.38	0.98	13.1	1.35×10^{-14}	2.95	0.98	13.2	0.000	-0.10
Nagaraj et al. (1993)	Black cotton soil-1	84	5	1.36×10^{-11}	6.29	1.00	3.67	8.04×10^{-11}	2.63	1.00	3.88	0.000	-0.21
Nagaraj et al. (1993)	Black cotton soil-2	84	18	1.21×10^{-11}	7.4	0.99	8.26	9.81×10^{-11}	3.04	0.99	8.2	0.000	0.05
Adams et al. (2013)	Boston blue clay	46	11	5.82×10^{-10}	5.18	0.98	13.18	2.31×10^{-9}	2.01	0.98	13.29	0.000	-0.11
Sridharan and Nagaraj (2005)	Brown soil-1	58.5	7	1.37×10^{-10}	5.23	1	3.64	5.88×10^{-10}	2.07	1	4.37	0.001	-0.73
Nagaraj et al. (1993)	Brown soil-2	62	6	1.78×10^{-10}	5.13	1.00	5.35	7.39×10^{-10}	2.03	1.00	5.75	0.000	-0.40
Nagaraj et al. (1994)	Brown soil-3	62	17	1.32×10^{-10}	6.29	0.99	12.1	7.54×10^{-10}	2.5	0.98	12.9	0.002	-0.72
Sridharan et al. (1986a)	Ca-Bentonite	125	5	1.35×10^{-12}	4.95	1	11	5.4×10^{-12}	2.1	1	10.7	-0.001	0.32
Lekha et al. (2003)	Calcium bentonite	97	6	1.37×10^{-10}	2.98	0.99	8.28	3.20×10^{-10}	1.19	0.99	9.83	0.003	-1.55
Mesri and Olson (1971a)	Calcium montmorillonite-1	220	9	9.30×10^{-14}	5.59	0.99	9.00	4.21×10^{-13}	2.46	0.99	7.22	-0.003	1.78
Dolinar (2009)	Calcium montmorillonite-10	129	5	2.47×10^{-12}	6.44	0.98	14.32	1.41×10^{-11}	2.78	0.98	14.51	0.001	-0.19
Mesri and Olson (1971a)	Calcium montmorillonite-2	207	9	8.53×10^{-14}	5.95	0.99	9.57	4.30×10^{-13}	2.61	0.99	7.95	-0.003	1.62
Mesri and Olson (1971a)	Calcium montmorillonite-3	220	8	9.47×10^{-14}	5.89	0.99	7.92	4.76×10^{-13}	2.57	1.00	6.48	-0.002	1.45
Mesri and Olson (1971a)	Calcium montmorillonite-4	205	9	1.14×10^{-13}	6.04	0.99	7.57	5.96×10^{-13}	2.64	1.00	6.06	-0.002	1.51
Mesri and Olson (1971a)	Calcium montmorillonite-5	193	9	1.18×10^{-13}	6.01	0.99	7.72	6.04×10^{-13}	2.64	1.00	5.98	-0.002	1.74
Mesri and Olson (1971a)	Calcium montmorillonite-6	207	9	1.40×10^{-13}	6.02	0.98	12.29	7.10×10^{-13}	2.65	0.99	10.55	-0.004	1.74
Mesri and Olson (1971a)	Calcium montmorillonite-7	189	9	2.25×10^{-13}	5.53	0.99	10.42	1.04×10^{-12}	2.41	0.99	8.59	-0.003	1.83
Mesri and Olson (1971a)	Calcium montmorillonite-8	201	9	1.14×10^{-13}	6.15	0.99	10.22	5.99×10^{-13}	2.70	0.99	8.45	-0.003	1.77
Clennell et al. (1999)	Calcium montmorillonite-9	120	9	8.85×10^{-17}	17.56	0.94	25.27	1.12×10^{-14}	7.50	0.93	25.89	0.003	-0.62
Sridharan and Nagaraj (2005)	Cochin clay	56.4	7	2.59×10^{-10}	5.88	1.00	2.40	1.35×10^{-9}	2.36	1.00	3.04	0.000	-0.64
Chamberlain and Gow (1979)	CRREL clay-1	28	8	7.33×10^{-8}	4.67	0.82	42.87	2.69×10^{-7}	1.87	0.82	42.77	-0.001	0.10
Chamberlain and Gow (1979)	CRREL clay-2	28	11	1.00×10^{-8}	4.58	0.93	26.59	3.62×10^{-8}	1.85	0.93	26.94	0.002	-0.35

Siddique and Saflullah (1995)	Dhaka clay	40.1	11	1.36×10^{-9}	4.36	1	18.6	4.29×10^{-9}	1.69	1	18.3	-0.001	0.33
Raymond (1966)	Don valley clay	41.2	31	3.06×10^{-10}	1.81	0.33	81.92	5.01×10^{-10}	0.71	0.33	81.82	-0.002	0.10
Bartos (1977)	Dredged material-1	77#	5	1.17×10^{-10}	-3.11	0.17	91.08	4.93×10^{-11}	-1.25	0.17	91.02	-0.001	0.06
Salem and Krizek (1973)	Dredging slurries-1	61	11	1.68×10^{-10}	3.28	0.76	48.59	4.28×10^{-10}	1.32	0.77	47.88	-0.007	0.71
Salem and Krizek (1973)	Dredging slurries-2	71	11	1.11×10^{-10}	2.52	0.54	67.84	2.28×10^{-10}	1.04	0.55	66.94	-0.012	0.91
Chamberlain and Gow (1979)	Ellsworth clay-1	45	14	1.96×10^{-7}	10.54	0.80	44.58	3.66×10^{-6}	4.18	0.80	44.53	0.000	0.04
Chamberlain and Gow (1979)	Ellsworth clay-2	45	16	5.63×10^{-10}	6.53	0.94	24.89	3.60×10^{-9}	2.68	0.94	25.35	0.002	-0.46
Shafiee (2008)	Fat clay: montmorillonite	69	3	2.91×10^{-8}	1.18	0.98	15.50	3.72×10^{-8}	0.43	0.97	15.87	0.001	-0.37
Sanzeni et al. (2013)	Fine grained soil	39#	122	3.79×10^{-9}	4.12	0.15	92.37	1.12×10^{-8}	1.59	0.15	92.33	0.001	0.04
Benson and Trast (1995)	Glacial till-1	27	15	2.13×10^{-9}	2.17	0.11	94.43	3.51×10^{-9}	0.81	0.11	94.38	-0.001	0.05
Benson and Trast (1995)	Glacial till-2	35	14	1.74×10^{-8}	7.31	0.56	66.54	1.04×10^{-7}	2.75	0.55	66.80	0.003	-0.26
Benson and Trast (1995)	Glacial till-3	33	13	8.54×10^{-9}	5.40	0.29	84.13	3.18×10^{-8}	2.03	0.29	84.15	0.000	-0.02
Benson and Trast (1995)	Glacial till-4	31	13	1.12×10^{-7}	8.85	0.56	66.69	9.44×10^{-7}	3.32	0.55	66.87	0.002	-0.17
Benson and Trast (1995)	Glacial till-5	32	15	6.76×10^{-9}	3.87	0.22	88.25	1.73×10^{-8}	1.45	0.22	88.19	-0.001	0.05
Benson and Trast (1995)	Glacio-lacustrine	43	13	3.57×10^{-8}	9.86	0.50	70.41	4.29×10^{-7}	3.75	0.50	70.54	0.002	-0.13
Samarasinghe et al. (1982)	Greyish clay	40.1	12	1.00×10^{-8}	5.74	0.98	14.39	3.70×10^{-8}	2.13	0.98	14.64	0.001	-0.26
Sridharan and Nagaraj (2005)	Illitic soil	73.4	7	2.34×10^{-10}	5.67	0.99	8.43	1.16×10^{-9}	2.36	0.99	8.04	-0.001	0.39
Sridharan et al. (1986a)	Fe-Bentonite	120	5	1.80×10^{-11}	2.95	1	21.6	4.05×10^{-11}	1.25	1	21.6	-0.000	0.07
Mesri and Olson (1971b)	Kaolinite-1	45	19	6.41×10^{-10}	4.66	0.93	26.68	2.43×10^{-9}	1.91	0.93	26.35	-0.002	0.32
Sridharan and Nagaraj (2005)	Kaolinite-2	58.7	7	1.22×10^{-8}	3.84	1	10.6	3.59×10^{-8}	1.55	1	10.5	-0.000	0.02
Horpibulsuk et al.	Kaolinite-3	69	33	5.81×10^{-10}	3.02	0.97	16.69	1.37×10^{-9}	1.25	0.97	16.24	-0.001	0.45

(2011)													
Pane et al. (1983)	Kaolinite-4	53.6	37	6.63×10^{-10}	3.98	0.93	27.17	2.03×10^{-9}	1.69	0.92	27.41	0.001	-0.24
Horpibulsuk et al. (2011)	Kaolinite-5	54	7	3.98×10^{-10}	1.42	1.00	5.59	5.88×10^{-10}	0.56	1.00	6.21	0.001	-0.62
Horpibulsuk et al. (2011)	Kaolinite-6	78	7	1.74×10^{-10}	2.59	1.00	4.60	3.63×10^{-10}	1.06	1.00	5.35	0.001	-0.74
Horpibulsuk et al. (2011)	Kaolinite-7	59	7	2.52×10^{-10}	1.11	0.99	9.96	3.43×10^{-10}	0.44	0.99	10.23	0.001	-0.28
Horpibulsuk et al. (2011)	Kaolinite-8	81	6	1.53×10^{-10}	2.19	0.99	10.08	2.86×10^{-10}	0.90	0.99	10.50	0.001	-0.42
Sridharan and Nagaraj (2005)	Kaolinite-9	48	7	3.35×10^{-8}	3.52	0.99	9.75	8.93×10^{-8}	1.41	0.99	9.47	-0.001	0.28
Sridharan and Nagaraj (2005)	Kaolinite-10	55	7	1.84×10^{-9}	3.54	1.00	4.65	4.99×10^{-9}	1.44	1.00	5.38	0.001	-0.73
Dolinar (2009)	Kaolinite& Ca-montmorillonite mixture-1	61.3	5	1.84×10^{-10}	4.96	1.00	4.48	7.44×10^{-10}	2.04	1.00	4.75	0.000	-0.27
Dolinar (2009)	Kaolinite& Ca-montmorillonite mixture-2	80.9	5	1.62×10^{-11}	6.48	1.00	3.91	9.86×10^{-11}	2.73	1.00	3.65	0.000	0.25
Sridharan et al. (1986a)	K-Bentonite	233	5	4.12×10^{-12}	2.94	0.97	17.68	9.43×10^{-12}	1.25	0.96	18.87	0.004	-1.19
Shafiee (2008)	Lean clay: Illite with some quartz and feldspar	29.5	3	1.23×10^{-5}	4.68	0.98	15.27	3.86×10^{-5}	1.76	0.98	15.43	0.000	-0.16
Walker and Raymond (1968)	Leda clay-1	36	8	1.65×10^{-10}	4.12	0.99	9.47	5.26×10^{-10}	1.67	0.99	9.93	0.001	-0.45
Raymond (1966)	Leda clay-2	33.4	33	1.52×10^{-9}	3.60	0.94	24.27	4.00×10^{-9}	1.40	0.94	24.44	0.001	-0.17
Sridharan et al. (1986a)	Li-Bentonite	675	5	4.16×10^{-13}	2.50	0.99	7.92	8.01×10^{-13}	1.12	1.00	6.42	-0.002	1.49
Lekha et al. (2003)	Local IIT clay	47	6	8.13×10^{-10}	1.53	0.97	17.68	1.23×10^{-9}	0.60	0.97	18.54	0.003	-0.86
Benson and Trast (1995)	Loess	49	17	2.66×10^{-8}	9.50	0.31	83.32	2.82×10^{-7}	3.59	0.30	83.50	0.003	-0.18
Chandler et al. (1990)	London Clay	85	11	2.82×10^{-11}	4.38	0.5	70	9.08×10^{-11}	1.71	0.5	70	-0.000	0.01
Leroueil et al. (1990)	Louiseville clay-1	68	5	1.03×10^{-10}	3.79	0.99	8.62	3.04×10^{-10}	1.56	0.99	9.75	0.002	-1.13
Tavenas et al. (1983b)	Louiseville clay-2	65	13	7.79×10^{-11}	3.99	0.51	69.73	2.33×10^{-10}	1.70	0.51	69.81	0.001	-0.08
Tavenas et al. (1983a)	Louiseville clay-3	62	5	6.16×10^{-11}	3.91	0.99	8.86	1.85×10^{-10}	1.65	0.99	9.30	0.001	-0.45
Dewhurst et al. (1996)	Marine clay-1	58	12	9.05×10^{-11}	2.19	0.91	30.72	1.48×10^{-10}	0.80	0.90	32.21	0.009	-1.49

Nagaraj et al. (1994)	Marine clay-2	106	17	3.39×10^{-12}	6.68	0.99	7.43	2.21×10^{-11}	2.81	0.99	7.45	0.000	-0.02
Tan (1989)	Marine clay	80	5	3.10×10^{-11}	11.9	0.69	55.7	8.63×10^{-10}	4.8	0.69	55.7	0.000	0.00
Benson and Trast (1995)	Marine deposit-1	37	16	6.06×10^{-9}	5.84	0.36	80.19	2.54×10^{-8}	2.20	0.35	80.37	0.003	-0.18
Benson and Trast (1995)	Marine sediment-1	53	16	1.76×10^{-9}	5.86	0.26	86.21	7.76×10^{-9}	2.23	0.25	86.35	0.002	-0.14
Benson and Trast (1995)	Marine sediment-2	67	14	1.35×10^{-10}	1.33	0.02	98.98	1.91×10^{-10}	0.51	0.02	98.99	0.000	0.00
Kim et al. (2013)	Marine sediments-1	55.1	5	4.02×10^{-11}	10.67	0.95	23.25	8.12×10^{-10}	4.35	0.95	22.90	-0.002	0.35
Kim et al. (2013)	Marine sediments-2	38.8	7	5.94×10^{-11}	8.60	0.57	65.66	6.70×10^{-10}	3.55	0.57	65.55	-0.001	0.11
Kim et al. (2013)	Marine sediments-3	55.1	5	2.42×10^{-12}	10.41	0.45	74.30	4.55×10^{-11}	4.29	0.44	74.55	0.004	-0.25
Kim et al. (2013)	Marine sediments-4	77	5	2.26×10^{-11}	7.65	0.97	17.50	1.97×10^{-10}	3.18	0.97	17.19	-0.001	0.30
Kim et al. (2013)	Marine sediments-5	60.9	5	1.65×10^{-11}	9.95	0.97	17.93	2.76×10^{-10}	4.07	0.97	18.39	0.002	-0.46
Kim et al. (2013)	Marine sediments-6	68.2	5	6.64×10^{-11}	4.44	0.77	47.85	2.32×10^{-10}	1.84	0.77	47.89	0.000	-0.04
Kim et al. (2013)	Marine sediments-7	69.7	5	3.60×10^{-12}	13.88	0.94	24.43	1.80×10^{-10}	5.72	0.94	24.27	-0.001	0.16
Kim et al. (2013)	Marine sediments-8	50.4	6	3.55×10^{-10}	6.13	0.84	40.18	1.89×10^{-9}	2.40	0.84	40.43	0.002	-0.25
Leroueil et al. (1990)	Matagami clay-1	46	4	2.80×10^{-10}	4.03	1.00	6.31	8.70×10^{-10}	1.67	1.00	6.67	0.000	-0.36
Leroueil et al. (1990)	Matagami clay-2	41	4	4.77×10^{-10}	3.63	0.99	11.88	1.33×10^{-9}	1.49	0.98	12.37	0.001	-0.49
Towhata et al. (1993)	MC clay	70	7	2.27×10^{-10}	2.50	0.97	17.79	4.67×10^{-10}	1.04	0.97	16.24	-0.005	1.55
Sridharan et al. (1986a)	Mg-Bentonite	129	5	4.43×10^{-12}	3.2	1	16.3	1.09×10^{-11}	1.34	1	16.9	0.002	-0.59
Benson and Trast (1995)	Mine spoil	70	14	2.84×10^{-10}	1.49	0.06	96.85	4.34×10^{-10}	0.60	0.07	96.67	-0.003	0.17
Chamberlain and Gow (1979)	Morin clay-1	26	7	5.38×10^{-8}	11.15	0.54	67.96	1.07×10^{-6}	4.35	0.54	67.90	-0.001	0.06
Chamberlain and Gow (1979)	Morin clay-2	26	7	1.29×10^{-9}	3.86	0.97	15.85	3.82×10^{-9}	1.56	0.97	16.50	0.002	-0.64
Sridharan et al. (1986a)	Na-Bentonite	495	5	1.52×10^{-12}	2.34	0.98	13.38	3.05×10^{-12}	1.00	0.98	15.74	0.007	-2.36
Clennell et al. (1999)	Natural clay	55	13	5.29×10^{-9}	10.84	0.98	15.25	9.28×10^{-8}	4.20	0.98	15.47	0.001	-0.22
Raymond (1966)	New liskeard clay	68.6	31	1.91×10^{-10}	1.72	0.22	88.17	3.05×10^{-10}	0.67	0.22	88.30	0.002	-0.12
Sridharan et al. (1986a)	NH4-Bentonite	223	5	2.46×10^{-12}	3.21	0.99	10.65	6.04×10^{-12}	1.36	0.99	11.59	0.002	-0.95
Dolinar (2009)	Poorly crystallized kaolinite	51	5	3.42×10^{-10}	4.54	1.00	4.24	1.23×10^{-9}	1.88	1.00	4.49	0.000	-0.25

Sridharan and Nagaraj (2005)	Red earth-1	37	7	6.55×10^{-10}	4.79	1	6.05	2.33×10^{-9}	1.85	1	6.81	0.001	-0.76
Sridharan and Nagaraj (2005)	Red earth-2	48	7	2.97×10^{-10}	3.99	0.99	11.40	8.73×10^{-10}	1.56	0.99	11.79	0.001	-0.39
Nagaraj et al. (1993)	Red soil-1	50	6	9.37×10^{-10}	5.7	0.98	14.8	4.36×10^{-9}	2.22	0.98	15.3	0.002	-0.56
Nagaraj et al. (1994)	Red soil-2	50	18	6.17×10^{-10}	6.35	0.97	16.6	3.39×10^{-9}	2.47	0.97	17.4	0.003	-0.78
Tan (1989)	Silty marine clay	108	8	1.64×10^{-10}	2.3	0.98	15.7	3.08×10^{-10}	0.98	0.98	15.7	0.000	0.01
Sivapullaiah et al. (2000)	Silt bentonite mixture-1	56	3	2.15×10^{-10}	3.34	0.99	9.13	5.40×10^{-10}	1.33	0.99	8.88	0.000	0.25
Sivapullaiah et al. (2000)	Silt bentonite mixture-10	112	5	7.12×10^{-11}	1.59	0.68	56.39	1.13×10^{-10}	0.64	0.67	57.76	0.016	-1.37
Sivapullaiah et al. (2000)	Silt bentonite mixture-11	59	6	5.02×10^{-10}	4.05	0.96	20.14	1.56×10^{-9}	1.63	0.96	20.27	0.001	-0.14
Sivapullaiah et al. (2000)	Silt bentonite mixture-12	180	6	9.96×10^{-12}	2.27	0.98	14.19	1.95×10^{-11}	0.95	0.98	15.65	0.004	-1.46
Sivapullaiah et al. (2000)	Silt bentonite mixture-13	228	6	5.02×10^{-12}	2.46	0.98	13.30	1.04×10^{-11}	1.05	0.98	14.85	0.004	-1.55
Sivapullaiah et al. (2000)	Silt bentonite mixture-14	274	6	1.75×10^{-12}	2.73	0.99	9.53	3.76×10^{-12}	1.19	0.99	11.41	0.004	-1.88
Sivapullaiah et al. (2000)	Silt bentonite mixture-2	69	4	1.26×10^{-10}	3.54	1.00	6.59	3.43×10^{-10}	1.44	1.00	7.01	0.001	-0.42
Sivapullaiah et al. (2000)	Silt bentonite mixture-3	82	5	7.65×10^{-11}	2.55	0.96	18.87	1.56×10^{-10}	1.02	0.96	19.83	0.004	-0.96
Sivapullaiah et al. (2000)	Silt bentonite mixture-4	96	5	3.60×10^{-11}	2.84	0.96	19.05	8.05×10^{-11}	1.15	0.96	20.11	0.004	-1.06
Sivapullaiah et al. (2000)	Silt bentonite mixture-5	172	5	4.50×10^{-12}	2.80	0.98	15.74	1.02×10^{-11}	1.18	0.97	17.50	0.006	-1.76
Sivapullaiah et al. (2000)	Silt bentonite mixture-6	224	5	4.17×10^{-12}	2.07	0.95	22.48	7.77×10^{-12}	0.86	0.94	24.36	0.009	-1.88
Sivapullaiah et al. (2000)	Silt bentonite mixture-7	274	4	2.91×10^{-12}	2.26	0.91	29.23	5.74×10^{-12}	0.96	0.90	31.08	0.011	-1.85
Sivapullaiah et al. (2000)	Silt bentonite mixture-8	72	5	1.24×10^{-10}	2.54	0.95	22.22	2.55×10^{-10}	1.03	0.95	22.36	0.001	-0.14
Sivapullaiah et al. (2000)	Silt bentonite mixture-9	98	5	5.03×10^{-11}	3.77	0.88	34.62	1.47×10^{-10}	1.53	0.87	35.36	0.005	-0.74
Clennell et al. (1999)	Silty clay-1	58	9	1.35×10^{-10}	3.03	0.91	30.07	2.84×10^{-10}	1.14	0.90	31.53	0.009	-1.46

Sridharan and Nagaraj (2005)	Silty clay-2	39	7	2.27×10^{-9}	3.66	1	7.27	6.08×10^{-8}	1.43	1	6.98	-0.000	0.29
Sivapullaiah et al. (2000)	Silty clay-3	51.2	6	6.27×10^{-9}	5.66	0.87	36.13	3.04×10^{-8}	2.27	0.87	36.60	0.003	-0.47
Clennell et al. (1999)	Speswhite kaolin-1	69	8	4.07×10^{-10}	3.01	1.00	3.24	9.50×10^{-10}	1.20	1.00	3.65	0.000	-0.41
Pane and Schiffman (1997)	Speswhite kaolin-2	53	8	5.19×10^{-10}	3.86	0.97	17.60	1.50×10^{-9}	1.67	0.97	16.91	-0.002	0.70
Leroueil et al. (1990)	St Esprit clay-1	74	4	9.00×10^{-11}	3.74	1.00	4.43	2.54×10^{-10}	1.59	1.00	5.01	0.001	-0.58
Leroueil et al. (1990)	St Esprit clay-2	64	5	1.08×10^{-10}	3.77	0.99	7.19	3.09×10^{-10}	1.59	0.99	7.58	0.001	-0.39
Leroueil et al. (1990)	St Esprit clay-3	50	6	1.01×10^{-10}	3.87	1.00	3.42	3.00×10^{-10}	1.62	1.00	3.74	0.000	-0.32
Tavenas et al. (1983b)	St-Alban clay	40.5	8	4.10×10^{-9}	-0.02	0.00	99.94	4.08×10^{-9}	-0.01	0.00	99.94	0.000	0.00
Dolinar (2009)	Well crystallized kaolinite	40.1	5	2.56×10^{-9}	3.94	0.99	8.36	7.64×10^{-9}	1.57	0.99	8.65	0.000	-0.28
	Max	675		1.23×10^{-5}	17.56			3.86×10^{-5}	7.50				
	Min	24		8.85×10^{-17}	-3.11			1.12×10^{-14}	-1.25				
	Averaged					0.85	27.29			0.85	27.53	0.001	-0.24
	Total		1358										

Notes:
* *a, b* is from the regressed equation k (m/s)$=aX^b$ where X could be e or $e^3/(1+e)$.
\# w_L values given in this table for Sanzeni et al. (2013) and Bartos (1977) are derived from averaging the ln(w_L) values for the soils in the sub-set. NB in the analysis used to generate Eqs. (12)-(14) individual w_L values were used from these two sources

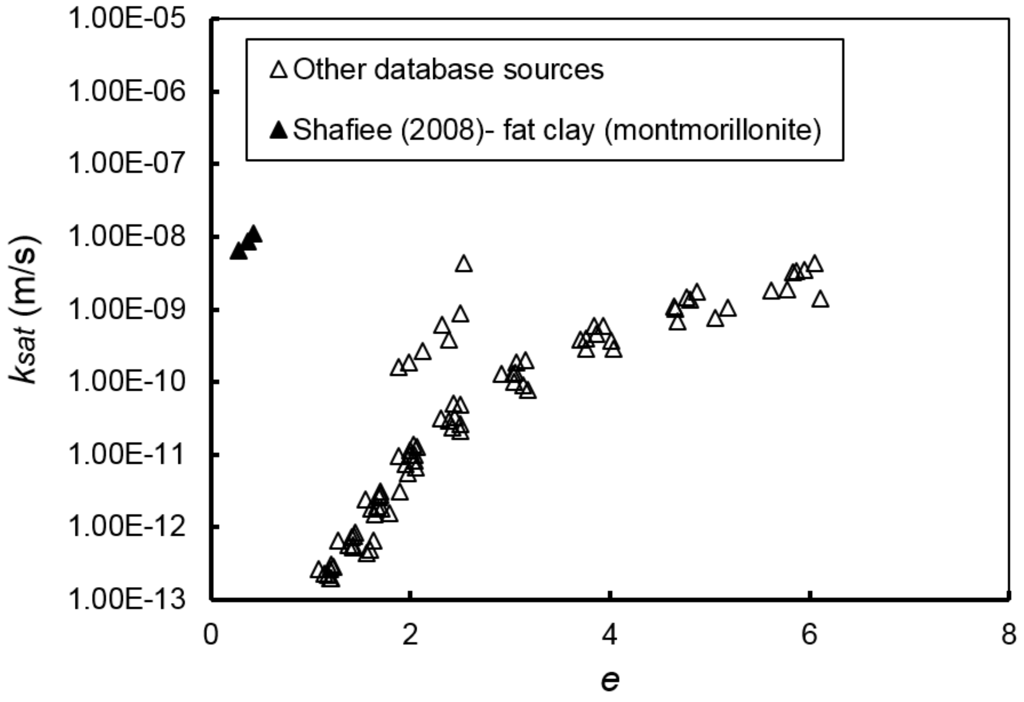

Figure S1: Data comparison for fat clay from Shafiee (2008) with other database sources (Mesri and Olson, (1971a); Clennell et al. (1999) and Dolinar (2009))

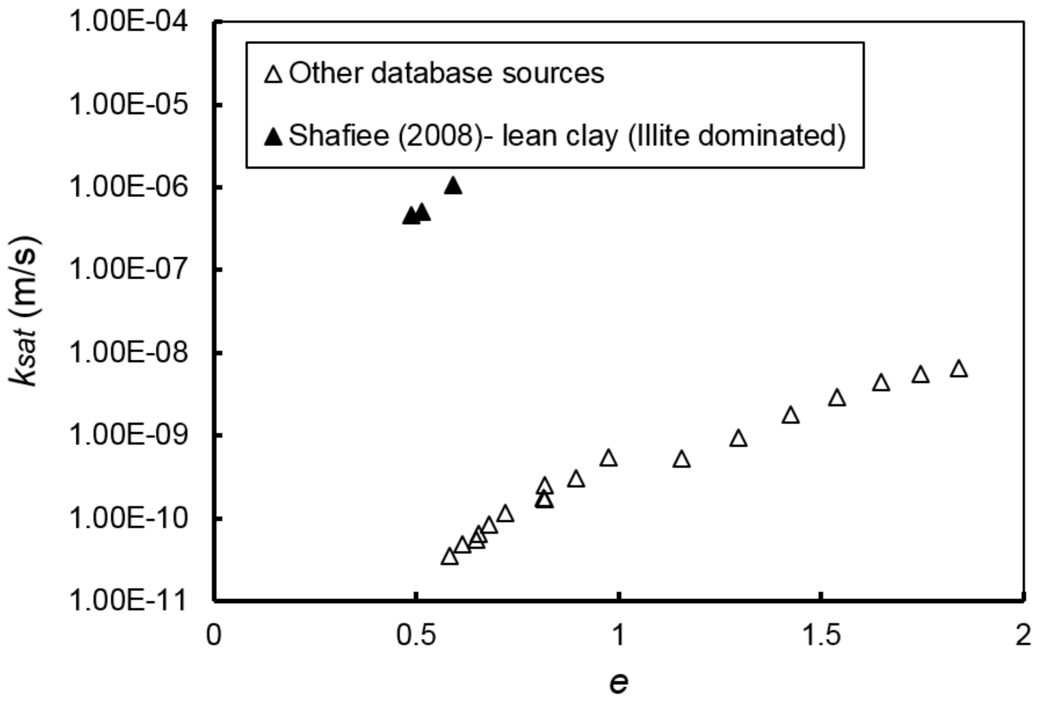

Figure S2: Data comparison for lean clay from Shafiee (2008) with other database sources (Sridharan and Nagaraj (2005) andAdams et al. (2013))

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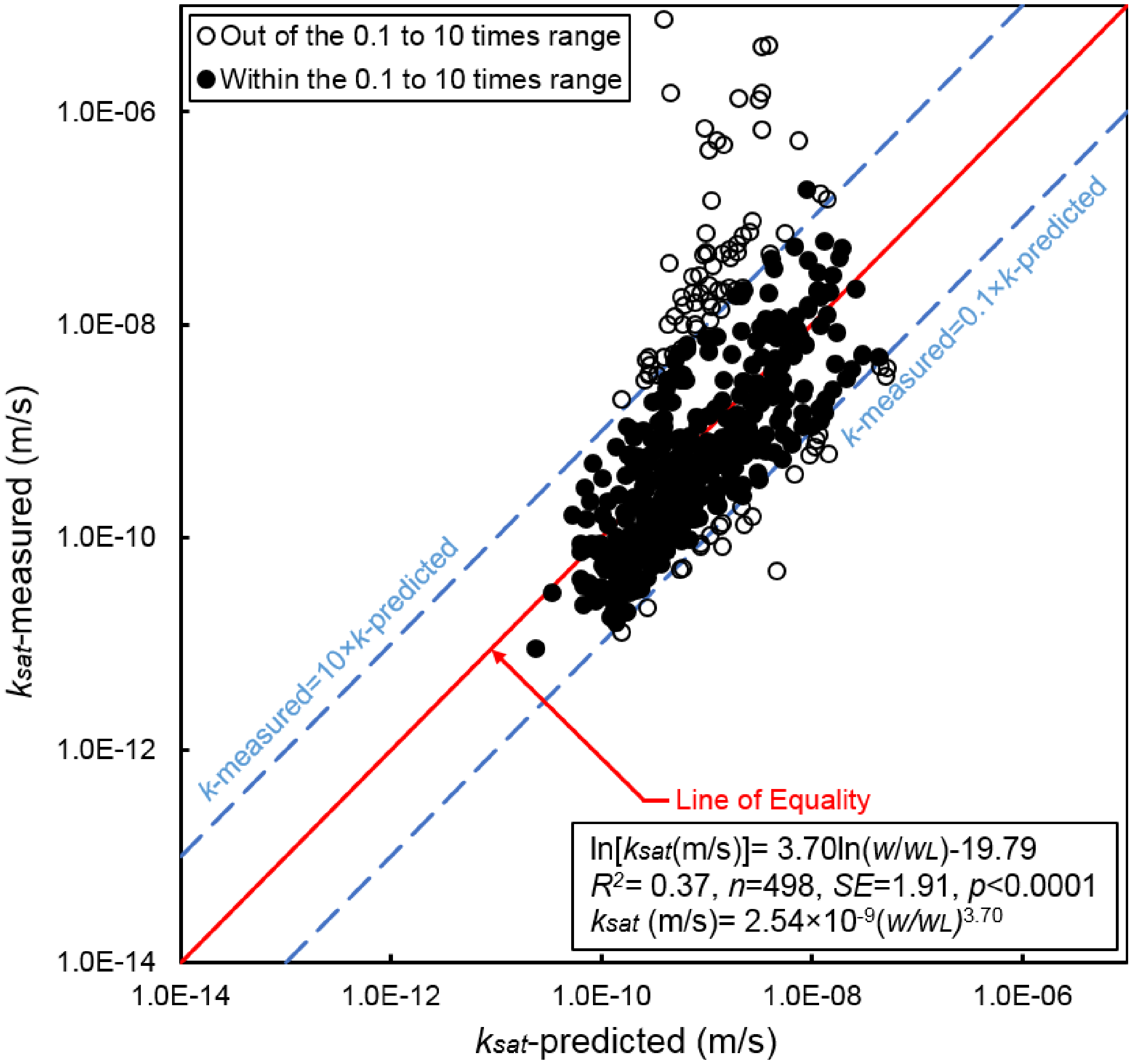

Figure S3: k_{sat}-measured versus k_{sat}-predicted (w_L< 50%)

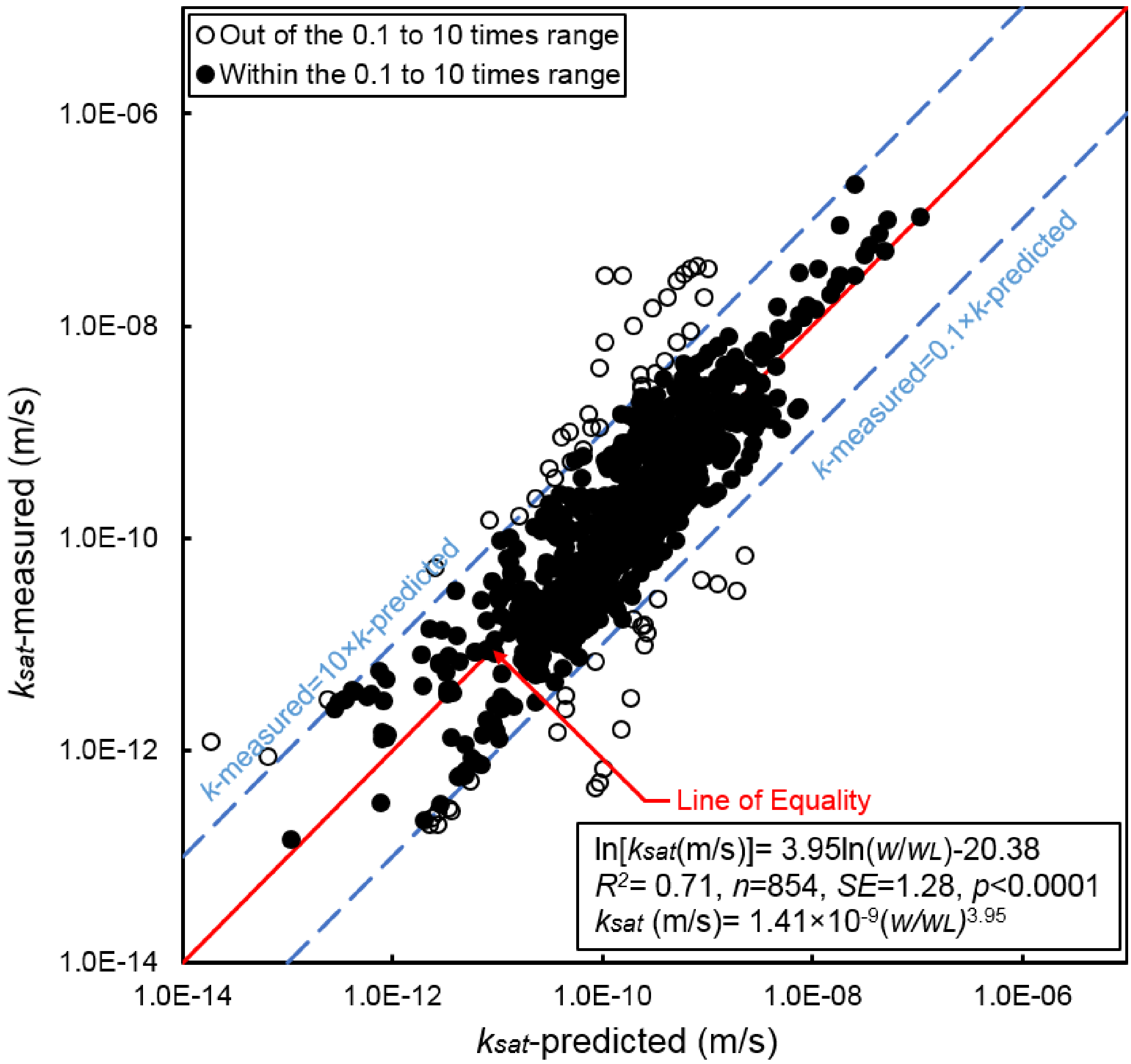

Figure S4: k_{sat}-measured versus k_{sat}-predicted ($w_L \geq 50\%$)

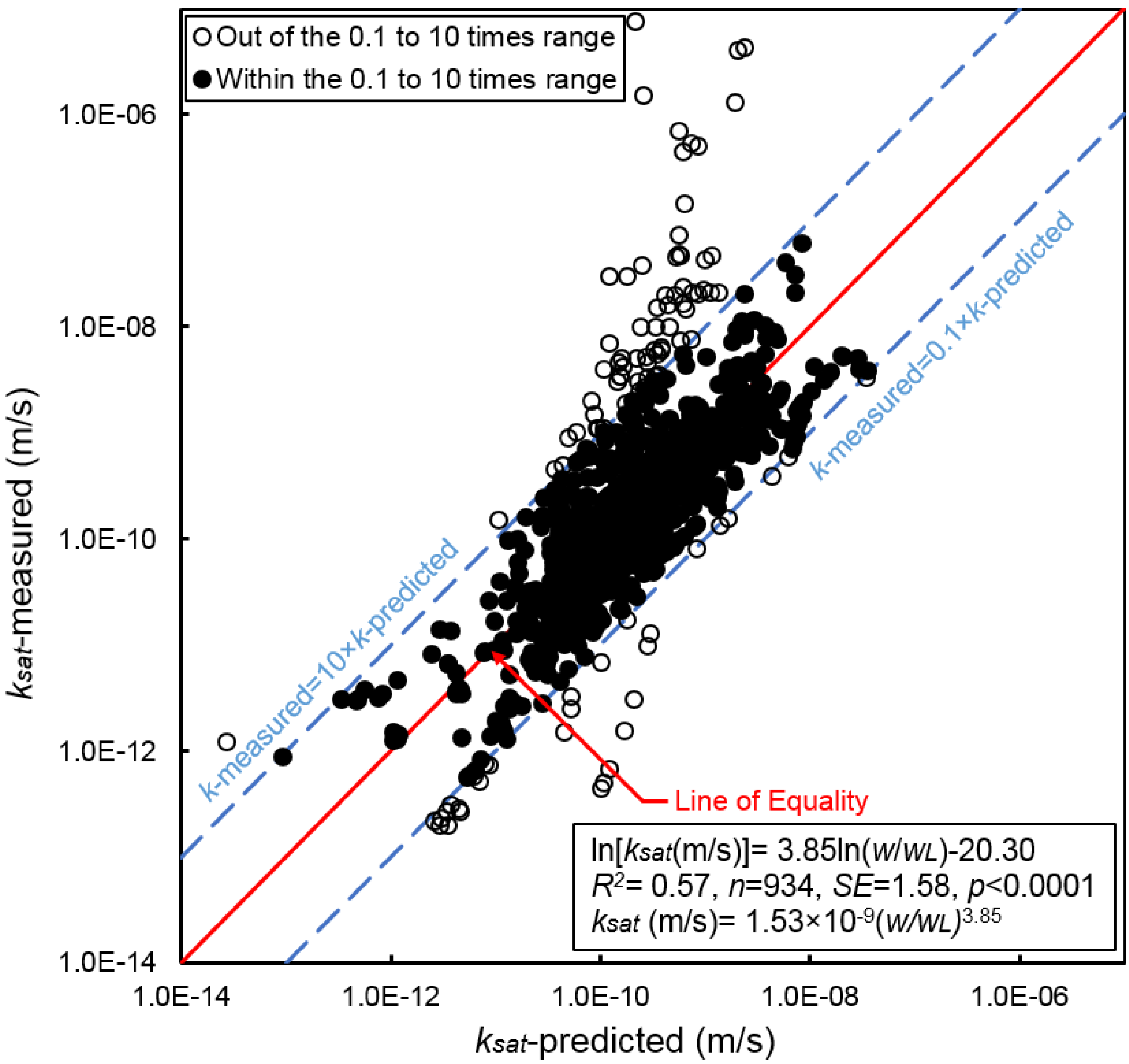

Figure S5: k_{sat}-measured versus k_{sat}-predicted (above the A-line)

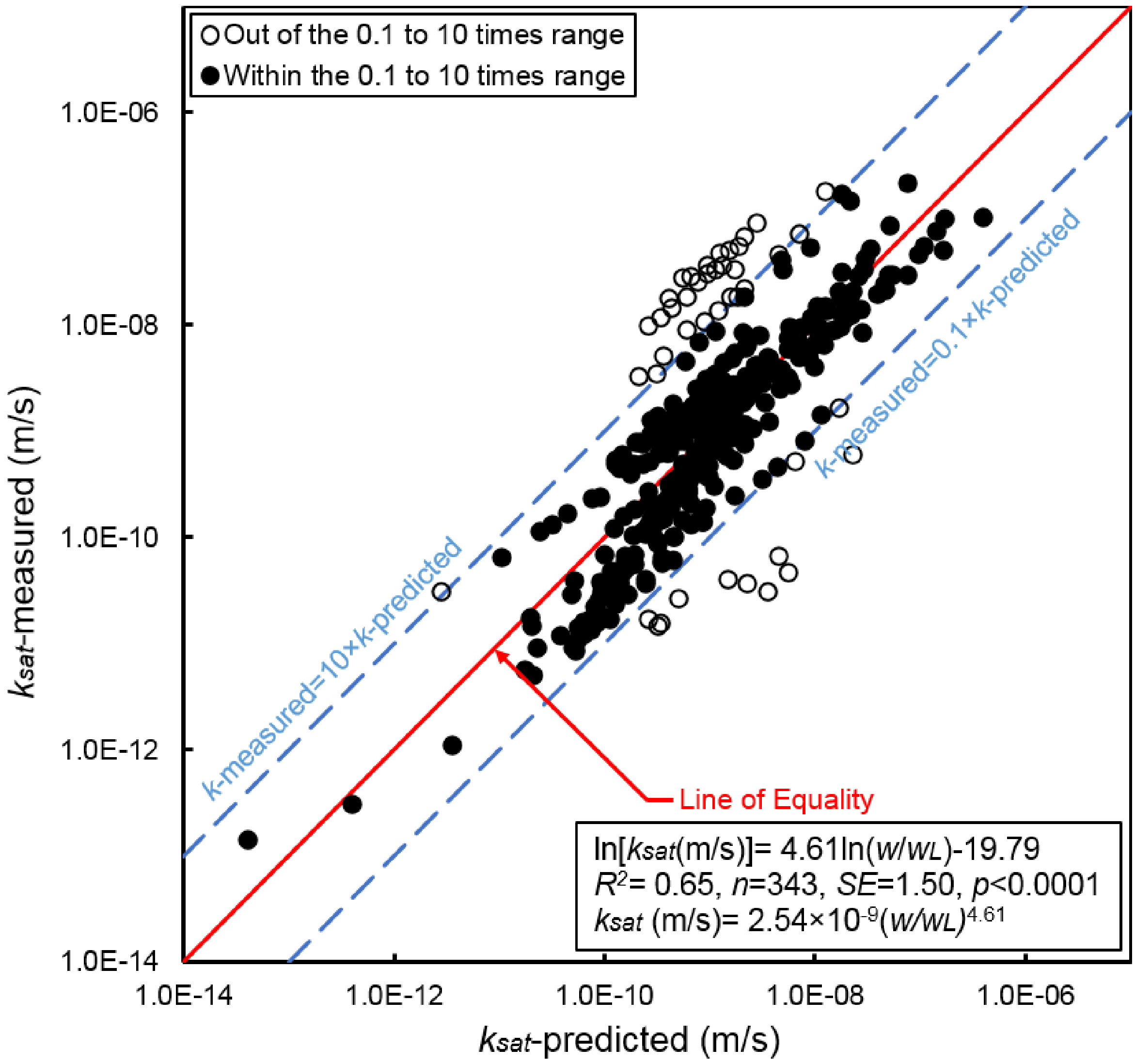

Figure S6: k_{sat}-measured versus k_{sat}-predicted (below the A-line)

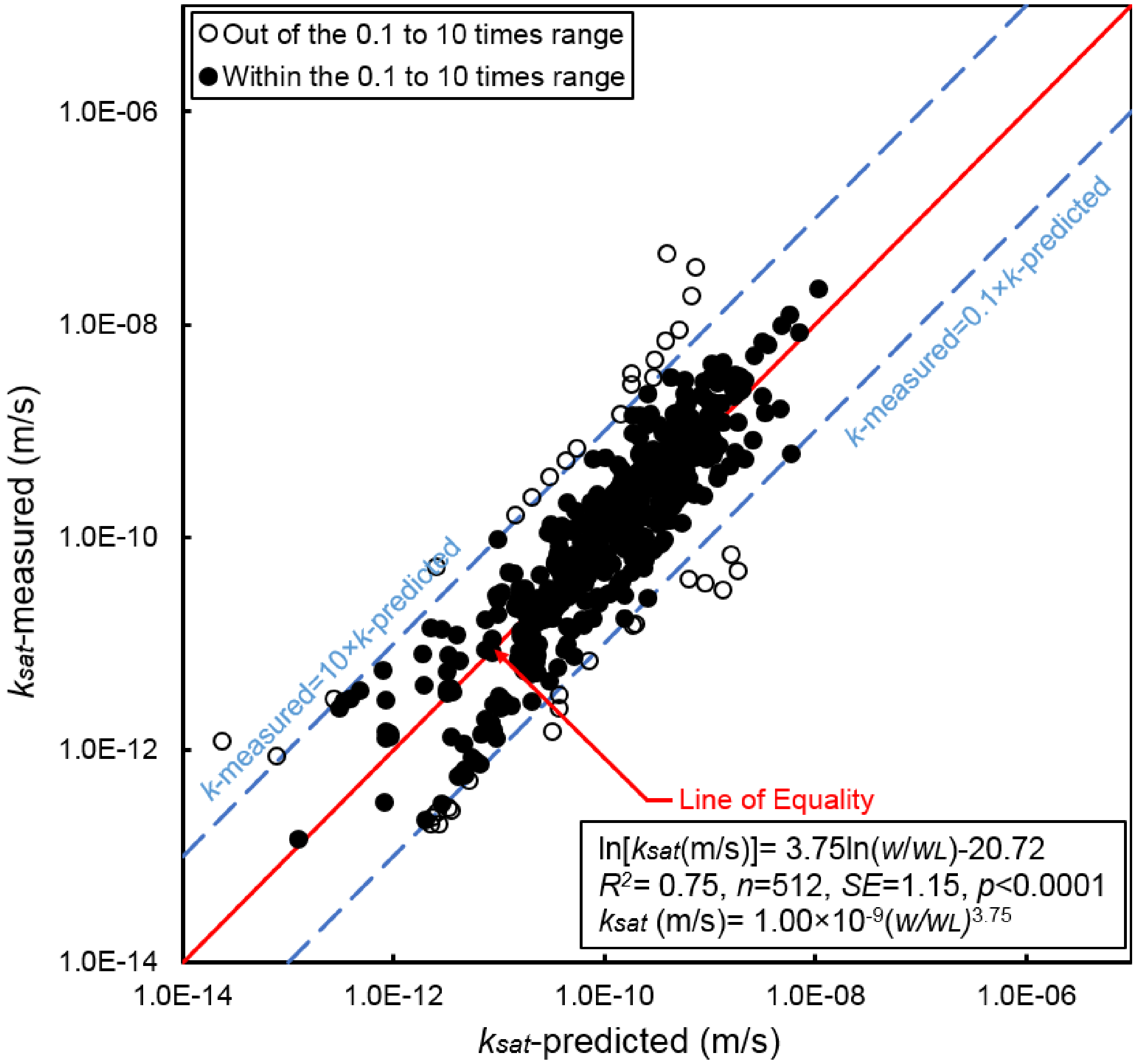

Figure S7: k_{sat}-measured versus k_{sat}-predicted (consolidation test)

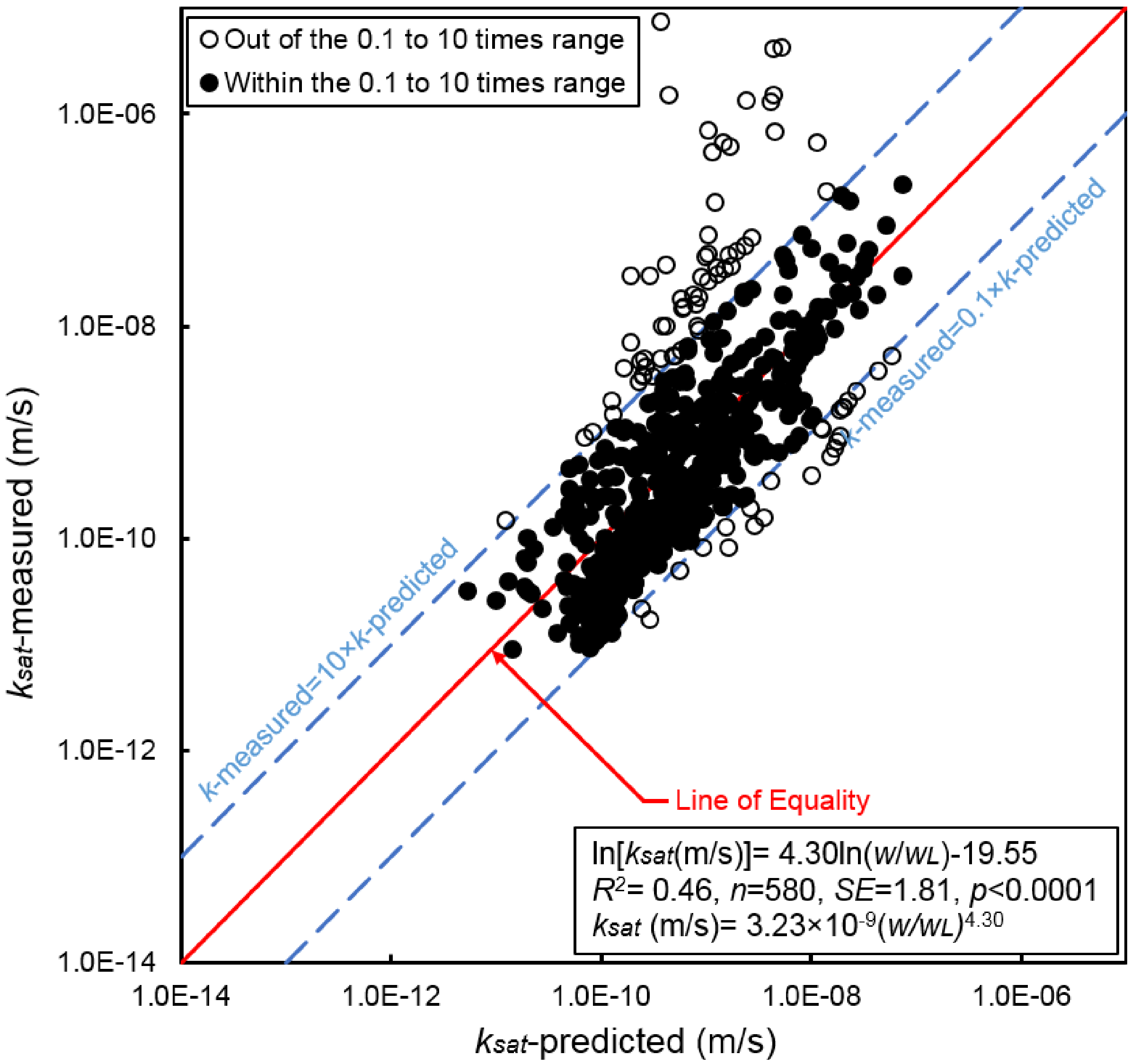

Figure S8: k_{sat}-measured versus k_{sat}-predicted (falling head test)

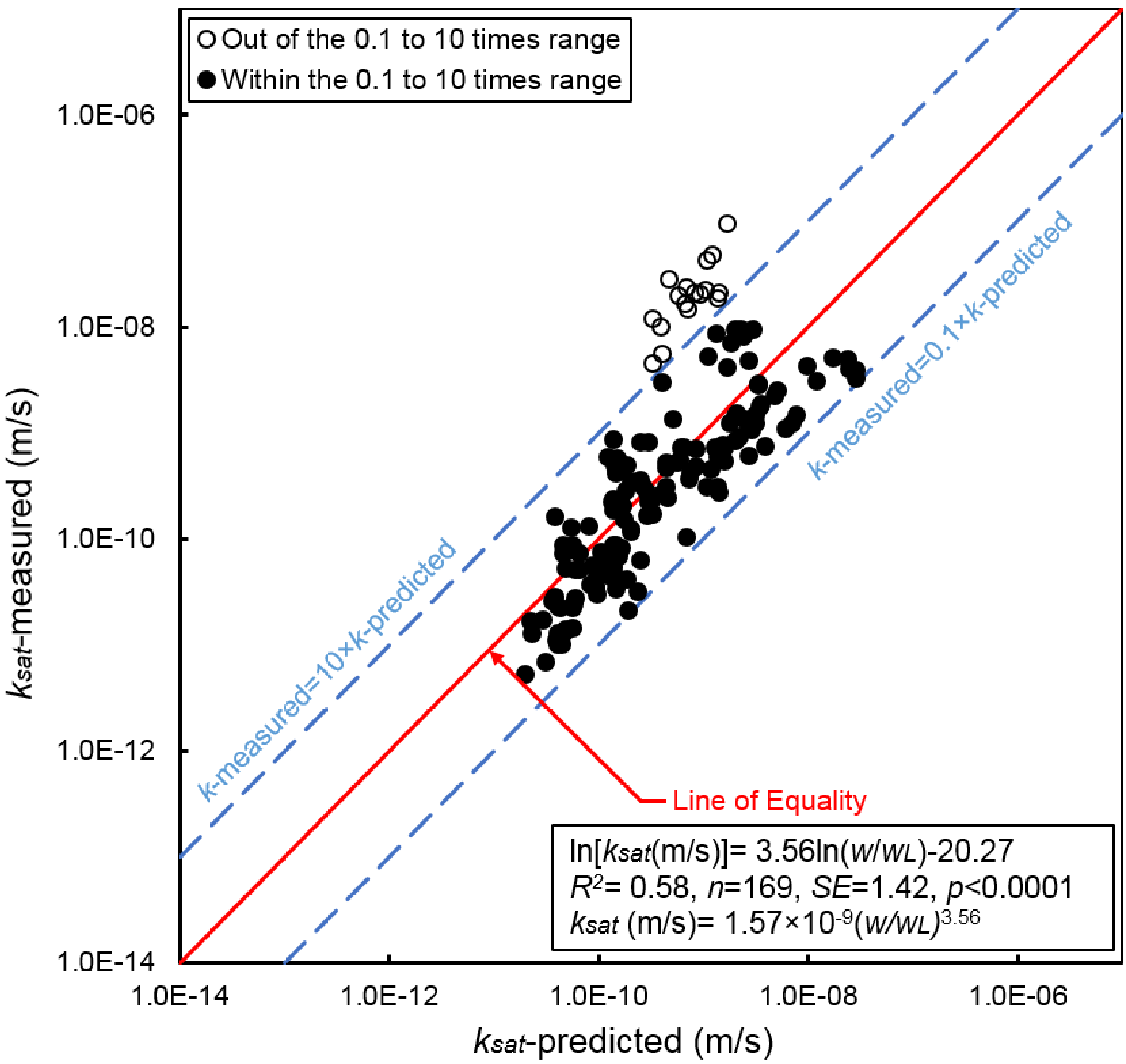

Figure S9: k_{sat}-measured versus k_{sat}-predicted (constant head test)

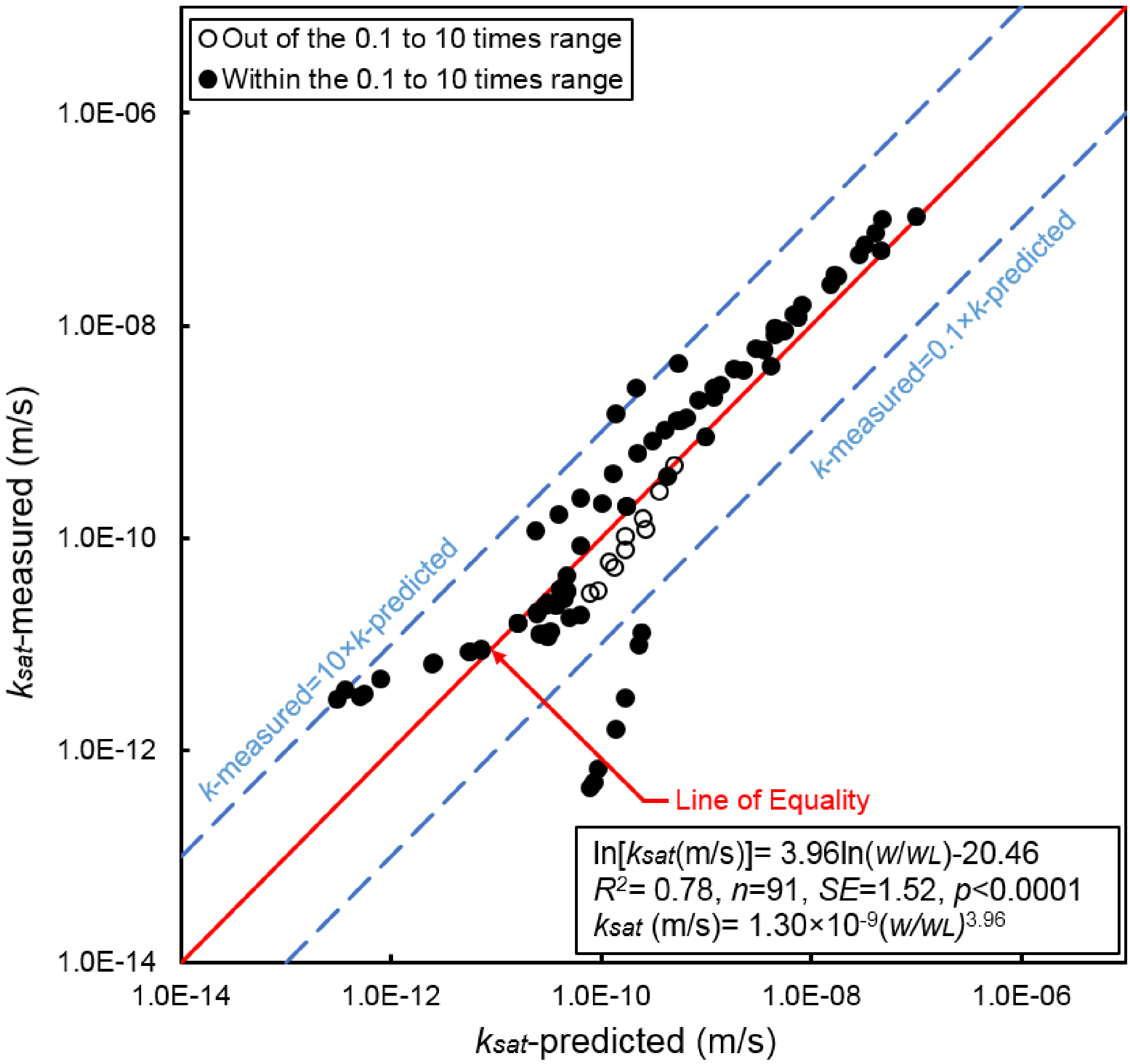

Figure S10: k_{sat}-measured versus k_{sat}-predicted (flow pump test)

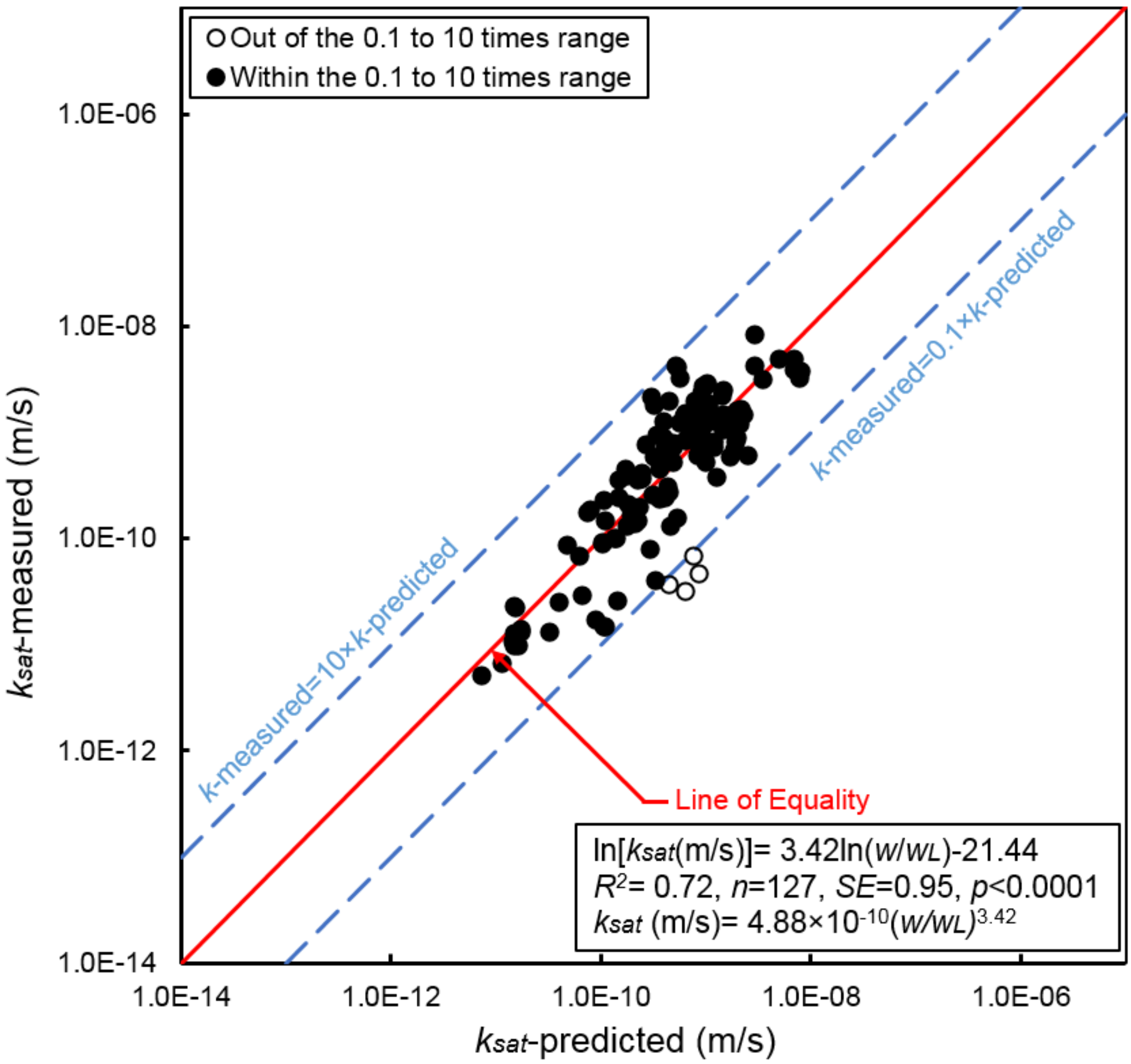

Figure S11: k_{sat}-measured versus k_{sat}-predicted (undisturbed samples)

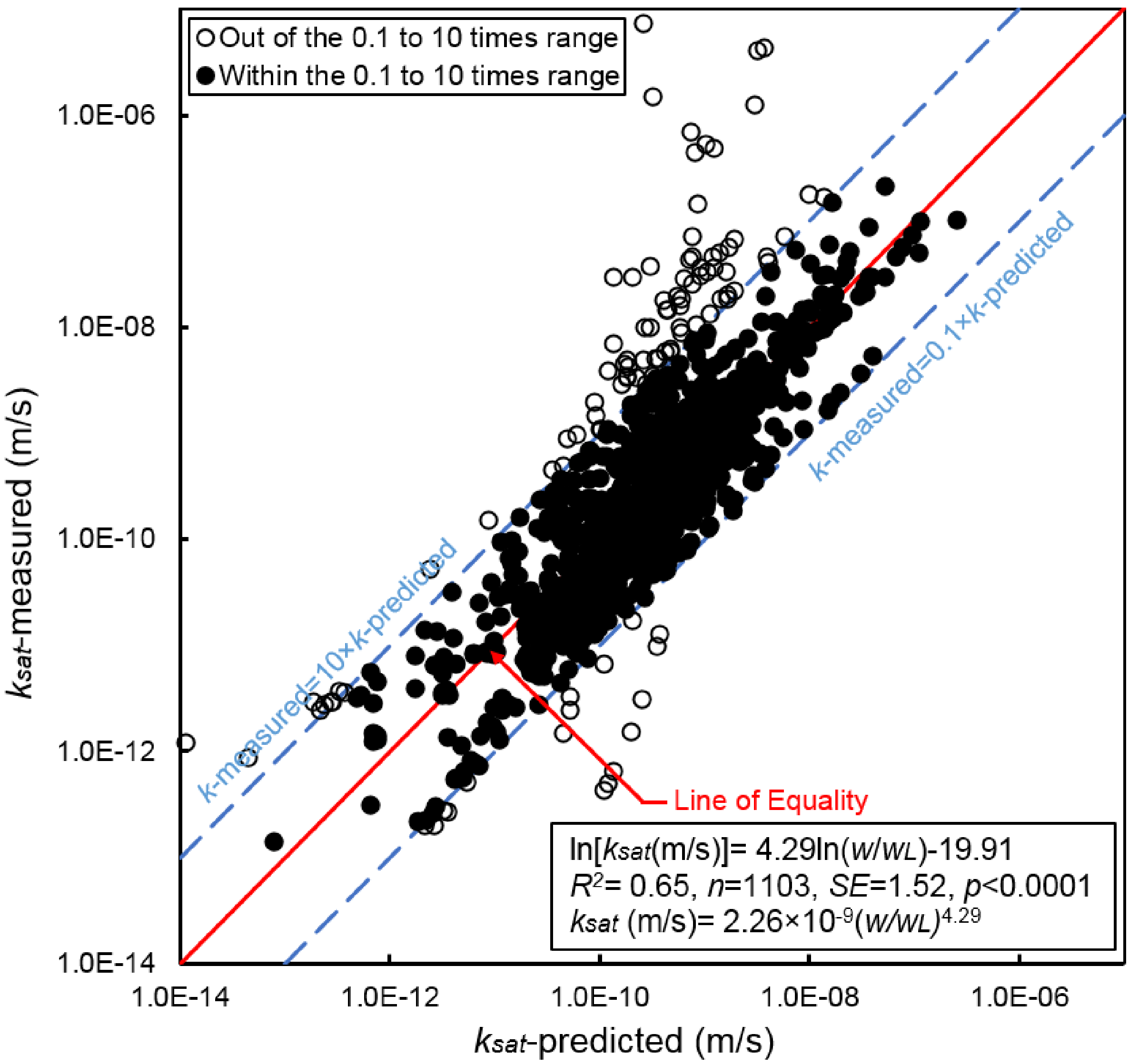

Figure S12: k_{sat}-measured versus k_{sat}-predicted (disturbed samples)

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